

Aviation News

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Fast Progress on Mars' Sister Ships: Progress on cargo successors of the bomber-designed Mars, of which three of 20 for Navy are in jigs at Glenn L. Martin plant, has been so rapid that the keel of the first was down before keel-laying ceremonies could be arranged. Picture shows the prototype after removal of the paint coat she had worn in NATS, saving 628 pounds of paint weight, 580 pounds of fuel on each California-Hawaii trip, and boosting cruising speed 4.3 mph. even with 1,200 pound additional payload thereby made possible.

Surplus Plane Demand Up With Long War Prospect

Tightened transportation conditions also factor in better market; inquiries coming in from companies engaged in war work.....Page 7

1945 Schedule Increases Easier Than Year Ago

Full operations resumed by East and West Coast AWPC's to meet new demands of armed services; further upward revision likely.....Page 19

Non-Scheduled Operations May Fill Local Needs

CAB investigation inclines Board to belief that operations will meet requirements better than regularly scheduled feeder lines.....Page 42

Port Users Debate U. S., State, Local Rights

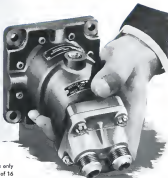
Conference in Washington agrees on need of more airfields after war but voices sharp disagreement with national airport program.....Page 13

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THE AVIATION NEWS

Washington Observer

TRANSPORT PRICES—Most airlines are reported favoring lease agreements for surplus transports, and progress has been made in completing the form of these contracts, as well as the price basis on which they will be made. Industry sources say they feel conversion allowances will be higher than the first-suggested \$25,000, possibly as high as \$40,000. This last is more nearly the cost to the airlines, although in most cases it has run higher and is one more than double. Some lines at first leaned toward outright purchase of the planes, fearing inescapable complications with the terminable lease contracts.

NATIONAL SERVICE—Both industry and labor are opposed to National Service, feel that they are being made the goals for an over-optimism that wasn't restricted to the civilian public, and for over-enthusiasm now. The Administration will be lucky to get much more than gesture legislation.

THE CAMPAIGN—Despite the pressure from President Roosevelt, there is virtually no possibility of a full National Service Law. The Army, which has finally managed to take over the War Production Board, felt it had reached the zenith of its influence on civilian affairs, and apparently believed that its widely-publicized manpower difficulties would spur Congress to enact National Service. What is more likely is that Congress will pass some fine-sounding measure that will clear its own skirts with the public, but which will still be highly unsatisfactory to the Army.

PLACING THE BLAME—A prime example of how industry and labor have borne the brunt of the new crisis was an attempt by some publishers of the Army Air Forces to lay production

materials shortages to "late ordering" by industry. The reference was withdrawn when some influential civilian groups threatened to tell the whole story. The truth is that industry used its resources at the express request of the services, and that it has cooperated all the way through in scheduling purchases. It is now doing this even more closely to avoid as many bottlenecks as possible in the crucial second quarter of the production year. The same group of publishers took a sideways aim at labor on the West Coast after a cursory glance at the situation, and has consistently denied industry credit for the job it has done.

LENGTH OF THE WAR—Top Army circles feel that it is a toss-up. With the bombs, the European phase may collapse with a suddenness just as shattering as the recent German offensive. Or it may drag out for a year. If it lasts too long, the Pacific theater will be upset and some planned operations may be held up. In the period before any such decision is made, however, the crescendo of fighting in both theaters will pinch the home front as it has never been pinched before.

GASOLINE FOR EMPLOYEES—Although gasoline has been pretty easy—look for trouble. In mid-1943, when the situation was tighter, railroads were carrying 71 percent of petroleum products, tankers only 8 percent. In 1944, tankers carried 16.1 percent, railroads 37.6, pipelines the balance. The European situation and the intensified supply problems of the Pacific may require recall of many of the tankers, the pipelines are operating at capacity, and the railroads are not so well able to meet the load both in rolling stock and workers. There have already been a few shorthages. Intensified shore-the-river programs, plant-damaged tankers and other

Boil's great Navarino plant where B-29's are now ahead of schedule



Surplus Plane Demand Increases With Prospect of Longer War

Tightened transportation conditions also factor in better market; inquiries coming in from companies engaged in war work and seeking aircraft suitable for executive transports.

By WILLIAM G. KEYS

Surplus planes for which there has been little or no market are coming into demand because of the indications of a longer war and tightened transportation conditions. Fixed base operators in many sections of the country are reporting inquiries from companies engaged in war work seeking fast executive transportation.

The result has been a new interest in surplus planes suitable for conversion to executive transports. There are a number of these planes available for purchase by any fixed base operator or individual on a basis of negotiated price. Planes to be sold on this basis are those for which there has been more supply than demand.

Although lists of aircraft in this category have specified that they are surplus ships available for allocation, actually most of them now have been removed from the allocation lists for sale on a basis of type price less depreciation and cost of repair.

Confusion—The fact that some offers have been made and rejected, and the complex procedures set up to differentiate between allocable and non-allocable planes, has resulted in some confusion.

The question mark in the sale of the surplus planes in this category is the price factor. Some operators who have sought the planes claim that the prices being set are too high. Defense Plant Corp. and Surplus Property Board Aviation Division officials on the other hand maintain that the prices are equitable, and that they would return a fair percentage of their cost to the government. Some adjustments between the two positions probably will have to be made, and machinery exists for reductions of type prices.

The government position is that prices should remain relatively high during the period of the shortage. The operators' position is that the planes should not be permitted to remain idle when a definite need for them exists in companies engaged in war work. So far, these self-sufficiency planes have remained idle, although a few sales have been made.

Valuable Planes—Planes which normally would not be considered usable, but which operators say can now be sold to many companies, are 35 planes of the Douglas R-17 series, a mid-wing ship powered by two Wright R-1500-45 engines of 1,600 hp. Gross weight is approximately 16,000 pounds. There are also eight Douglas R-33 cargo conversions, now designated UC-67. This is also a mid-wing plane, built at about the same time as the R-17's and designed for

the same general purpose. They are powered by two Wright R-2600-3 engines of 1,800 hp. Gross weight is about 34,500 pounds.

Type price on this ship is listed at \$25,000, from which depreciation and repair reductions would total about \$14,000 or \$10,000, making the price that the government seeks to obtain in the neighborhood of \$10,000 or \$11,000. Government sources say offers of approximately \$4,000 have been rejected. One operator who sought to obtain the ships maintains that the government price, plus conversion and repair costs, would make it impossible to sell the plane at a reasonable price.

There are also 83 Lockheed AT-18's and 11 of the RA-27's and 19 almost identical ships powered with two Wright R-1820-37 engines of 1,300 hp. Gross weight is about 18,900 pounds. Type price for these planes is \$40,000.

4400 Cessnas—There are also 449 Cessnas of the AT-17 and UC-75 series in which some operators have expressed interest. These will require modifications to meet CAA requirements, which these operators say they can make, providing the planes are made available at prices they can meet.

Considerable competition also is developing for the larger planes

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NEW JAP INTERCEPTOR:

Aviation's conception of the Jack II, new Jap Navy plane now in action against American submarines in the Western Pacific. It is said to have a range of about 1,100 miles, but probably no armor or self-sealing tanks. Drawing is from Popular Science.

of cabin type of loss than \$500 pounds being offered for bids, with several instances reported in which bidders have been disappointed because of the provisions of the regulations that permit a buyer to purchase the planes outright at full ceiling price at any time up to 24 hours before the opening of the bid. Under the regulations, the first person to offer a ceiling price gets the plane. If two or more offers are made simultaneously, the person offering the full ceiling price draws—The same procedure being followed when identical prices are offered.

Low Prices Move Canadian Surplus

The Canadian government is moving its surplus aircraft at prices that are sometimes astounding to bidders in this country. Sales are handled by the War Assets Corp. of Montreal, a government organization set up to dispose of surplus property.

Authoritative sources report sales such as that of eight P-51's for \$38,000 each. These are being placed in inter-island and over-water operations both in Canada and in the Caribbean islands. Original cost varies according to the manufacturer, with the lowest cost production running in the neighborhood of \$30,000 and the highest slightly more than \$30,000. A Lockheed 12 is shown on one price list for sale at \$4,493. Northrop bombers are listed at \$7,500—each was recently sold in this country for \$18,000, but not through surplus.

► Cessnas and Stinsons—More than 500 Cessnas with Jacobs 14 engines are reportedly on the Canadian market at \$9,000. Stinson Continental-powered Stinsons, originally costing \$4,700, are listed at \$700.

Shell Oil Co. is reported to have bought 50 Anson 4's for crop dusting use at \$10,000 each—the price on the same plane several weeks later reportedly was listed at \$4,000. A Grumman Goose is listed at \$13,100, another at \$10,688.

Flower Heads PAC

Election of Don Flower as chairman and James C. Welsh as vice-chairman of the Personal Aircraft Council, Aeronautical Chamber of Commerce, to serve as informants officers until the annual meeting of the council later in the year, was

announced following a meeting in Washington last week.

► Success: Geating—Flower, sales manager of Central Aircraft Co., Wichita, succeeds Joseph T. Geating, Jr., who has become acting manager of the council. Welsh, director of private plane sales for Stinson Division, Consolidated-Vultee Corp., Wayne, Mich., succeeds William A. Marx, who recently resigned from Stinson to become an executive of Bendix Aviation Corp.

The meeting included discussion renewing program of the council in recent months, and arrangements for enlarging the council membership which will be an-

nounced soon. Also discussed was the council's part in the proposed program of technical research for improving personal aircraft, which CAA hopes to establish, and the council's part in sponsoring the model airport at El Paso, Mo.

Ryan Backlog Grows

New Grumman and Boeing orders for more than \$2,500,000 have brought the 1945 backlog of contracts for exhaust manifolds to more than \$11,000,000 for Ryan Aeronautical Co. Ryan also is building exhaust systems for Bell, Martin, Douglas, Republic, Curtiss-Wright, Goodyear and other aviation companies.

Bell-Marietta Ahead of Schedule On B-29's After Slow Start

Plant has been asked to triple output during 1945, despite difficulty in getting under way and catching up with orders; modification installed in production line.

By SCOTT KERSHNEY

It is no secret that Bell Aircraft had its troubles getting into production of Boeing B-29's at their huge Marietta, Ga., plant, but it can now be disclosed that the plant was ahead of schedule last month, that they expect to continue at that head and that they have been asked to triple production in 1945.

Larry Bell, president of the company, told newsmen who toured the Marietta plant recently that they didn't scrape the bottom of the manpower barrel when they went into Georgia, because it already had been scraped. The plant construction was started in January, 1942, a few weeks after Pearl Harbor and as an indication of how the difficulties were surmounted, began turning out Superfortresses a year later. Now around 25,000 workers are employed, 40 per cent of them women and most of them with little or no previous industrial experience.

► Asked to Triple Production—Maj. Gen. Kenneth S. Wolfe, chief of engineering and procurement, Air Technical Service Command, the Army engineer most closely associated with the B-29 from its inception, called on the Bell bomber plant for triple production and said that the B-29 with its exceptionally large bomb load and its high speed would be more in demand than ever as our forces advance further in the Pacific. Speed and bomb load, cut down as a result of long-range operations, will shoot upward in attacks to come.

The Bell Bomber plant is now delivering to the Army Air Forces the most up-to-date plane technically available for combat. This plant has facilities which build the complete plane, eliminating separate or additional modifications. When a B-29 leaves Bell-Marietta it is ready for combat.

► Modification System—When Bell was entrusted by ATSC to deliver a completely modified plane, the company elected to use a system of installing modifications in the production line rather than put in parts which would have to be

discarded by ATSC headquarters at Wright Field.

After production began in December, 1943, the plant operated on a cost plus fixed fee basis. Until July, 1944, when it was changed to a fixed price contract. The annual payroll is around \$50,000,000. Of the approximately 25,000 workers, about 65 per cent are Georgians, 12 per cent coming from states near Georgia. Less than three per cent came from New York State, home of Bell Aircraft, from which state initial instructors and supervisors were drawn.

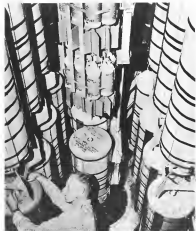
► Plant Layout—The plant itself produces about 67 per cent of the airplane, the other 33 being provided by subcontractors. The plant sub-assembly lines move at right angles to the main and final assembly line.

The entire project covers 2,500 acres, including the airport of 1,200 acres with three runways 6,000



RECONVERSIONS, U. S. AND BRITISH:

High-crowned chairs and immobile winged headrests mark a British reconversion to passenger use of a Douglas DC-3. Douglas' conversion features a new light-weight seat with a collapsible back section. Note that British reconversions has only two rows of seats against three for the Douglas job. The British picture is looking forward, the other all



PART OF SUPERFORTRESS BOMB LOAD:

Ordinance officer of the 21st Bomber Command headquarters at Seipen attaches fuzing mechanism to bomb in the bomb bay of a Boeing B-29 in preparation for another raid on Tokyo. The bomb load includes incendiaries and fragmentation bombs.

feet long and 150 feet wide, the structural crane system comprises some 10 miles of tracks; the main factory building contains 3,550,000 square feet, there are about 60 miles of fluorescent lights in the completely blacked-out plant; the sprinkler system has 250 miles of piping.

Aviation writers who visited the project were permitted flights in the Superfortress, and those who had flown in the B-29 at Boeing's Wichita plant last spring, including a representative of AVIATION NEWS, were again impressed with the smoothness of the flight, the sense of reserve power, the maneuverability and speed of the huge craft and the operation of the pressurized cabin system which retains approximately 6,000-foot altitude conditions at much greater heights.



"Superfortress" Production at Bell Bomber Plant: Shown here is the newly photographed interior of the Bell bomber plant at Monette, Ga., which has been asked to triple its production of Boeing B-29's. Also shown is the 75-foot tube which goes across from the control cabin to the gunner's compartment and a tail cone.

See Emergency Controls Necessary To Avert Aluminum Shortage

Inventory adequate for current operations but not sufficient for second quarter, survey of situation reveals; closer scheduling of orders recommended.

Confusion in the aluminum situation which has been causing some concern among aircraft industry and government officials began to clarify this week with agreement that emergency controls are necessary to avert development of a shortage in the second quarter of this year.

It appears that there is a threatened shortage rather than an actual shortage at this time, say inventories, although depletion in some cases, are reported sufficient to carry through the first quarter. Directives would be used to meet certain critical situations.

Program Agreed On.—Working through the National Aircraft War Production Councils, industry executives are agreed on a program which would include a cancellation of all orders during the first quarter which, if received, would result in more than a 30-day inventory and all allotments for the second quarter would be canceled and new allotments made.

Order books now are reported about 50,000,000 pounds in excess of anticipated production.

Recent meetings of the material committees of the East and West Coast Councils, followed by a meeting of industry representatives of officers of the Aircraft Scheduling Unit have developed procedure which it now appears will avoid what appeared for a time would be a most critical situation which might affect and endanger aircraft production schedules.

Purchasing Procedures Recommended.—Close scheduling of orders for aluminum is a necessity and the Aircraft Scheduling Unit is trying such purchasing procedure on aircraft manufacturers to meet changes currently taking place in the supply of aircraft materials and components. Concern has been expressed by the ASU over prospective shortages and very tight supply in some components.

Failure to meet aircraft schedules has rarely of late been traceable to lack of aircraft materials or components. Credit for this belongs to contractor personnel, cooperation and resourcefulness of

suppliers and producers and the efforts of the Service.

Inventory Used.—There has been a disposition in some official circles to blame the threatened shortage on purchasing procedures are necessary to avert development of a shortage in the second quarter of this year. As a matter of fact, the industry was operating under instructions to reduce orders and utilize available inventories.

This began late in the summer when production cutbacks were not uncommon and schedules were reduced. As a consequence, orders to aluminum fabricators fell off, output of aluminum plants was reduced and they lost workers. Then came the upward revision of schedules with its consequent demands for aluminum.

Surplus Material Utilized.—Col. E. W. Rowlings, administrator of the Aircraft Scheduling Unit, said the aircraft industry has made a determined and successful effort to use surplus aircraft material in production while there is still a need for such material.

As a result, close ordering is being urged together with consideration of the flow time cycle



AIRBORNE MOTORCYCLE

Motorcycle developed by British for use by airborne troops is shown packed in a special container to protect it during a parachute drop.

which in many cases will mean the difference between prompt deliveries and failure to meet important schedules. C. S. H.

Army Glider Pilot Training Revised

The Army Air Forces hereafter will give glider pilot training only to officers who have their airplane wings and are proficient in flying two-engine planes.

This move is designed to meet requests of combat leaders for "double-breast" pilots. Hereafter, selected pilots of powered aircraft, most of them recent graduates of Training Command pilot schools, will be sent directly to Brig. Gen. William D. Cline Troop Carrier Command school at Lumburg, Maxton Army Air Base, where

'Useful' Plane Urged by Bayard

Unless the aviation industry produces the kind of personal plane which people will buy and use in large numbers, 90 per cent of the leading facilities proposed by CAA will never be used, J. B. Bayard, Jr., chief, planning and survey division, airport service, CAA, warned the Airport Plans Conference in Washington last week. Assuming that the industry had held back development of the private plane, Bayard declared no sensible private flying industry can be built on planes like the new models thus far exhibited by manufacturers.

"It may be that we are disappointed and that the various manufacturers have new and better planes designed and ready to produce, but we can only say that the great mass of the public knows to be interested in private flying, but has not been offered or guaranteed any air vehicle yet which affords more utility than present models. If a vehicle is useful, the American public will buy it, whether they can afford it or not. If it is not useful it will not sell," he declared.

Bayard said the development of a useful personal plane was one of three "IDs" in the future of aviation on which large-scale aviation development depends. The others are: creation of a sufficient number of airports, and extension of a general economic level among the people high enough to make possible mass ownership of airplanes and mass use of airports.



5 Critical Materials,

Components Listed

Present position in five important materials and components necessary to aircraft production is outlined as follows by Col. E. W. Rowlings, Administrator of the Aircraft Scheduling Unit:

Steel Tubing: More critical today than at any time since 1943, due to increasing production of aircraft. Minimum flow time is 120 to 150 days.

Aluminum Sheet: Extremely heavy order books have been placed on the aluminum producers for the first quarter with the order load being increased by the Aircraft Scheduling Unit in shipments or postpone all orders for material required for products that are not of the highest urgency.

Brass MII Products and Copper Wire: Rapid expansion of small arms ammunition production has

increased the load on brass mills for ship production and this competition of ship yard facilities will obviously increase the lead time necessary in the procurement of brass mill products.

Electrical Products: Circuit breakers, fractional horsepower motors, relays and switches are in a short supply position with surpluses of these products negligible and producers reducing raw material inventories to the level of orders received.

Anti-Friction Bearings: The bearing industry reports requests for shipment of anti-friction bearings for the first quarter total only 40 per cent of actual shipments made in the previous three months and that these new orders are still far behind the stated requirements of the military services.

Technical Aviation Developments Stressed at SAE Detroit Meeting

Progress in warplanes, helicopter designs, electronic controls, jet propulsion, etc., discussed in papers presented at annual conference; Crawford, of General Motors, elected president.

Technical aviation developments were an important factor in discussions and prepared papers of the annual 1944 meeting of the Society of Automotive Engineers at the Book-Cadillac Hotel, Detroit, with virtually four days of meetings devoted to aviation subjects. J. M. Crawford, chief engineer, Chevrolet Division, General Motors Corp., Detroit, was elected president, succeeding W. S. James, chief engineer, Studebaker Corp., South Bend, and the following SAE vice-presidents in charge of aviation activities were elected: Air Transport, William Littlewood, engineering vice-president, American Airlines; Aircraft, J. L. Atwood, executive vice-president, North American Aviation, Inc.; Aircraft Engine, R. W. Young, chief engineer, Wright Aeronautical Corp.

► "Missing" Service Ceiling—That the North American Mustang F-6, powered with the Packard D-24-Bayce engine, "has the highest service ceiling of any piston-engine aircraft in existence" was stated by Arthur P. Erma, Packard engineer, in a paper discussing engine induction systems. He emphasized importance of reducing supercharger inlet losses for high altitude operation.

R. H. Prescott, chief engineer of Kellett Aircraft Corp., discussing helicopter design problems emphasized the necessity for low tip speed, so that the tips of the forward speed of the helicopter and the rotational tip speed would remain below the speed of sound, avoiding compressibility effects, and rotor noise.

Improvements in aircraft lights in recent years were reviewed by May A. D. Davidson, Wright Field, and his report included description of lamp and battery lighting units used with magazine containers and aerial delivery containers dropped by liaison and cargo planes in ground forces.

► Electronic Controls — Development is now in progress on the use of electronic controls for operating flight control surfaces, and other primary control works, as a result of successful experience with elec-

tronic controls on secondary applications such as armament, ice detectors, supercharger regulators, etc., it was disclosed by Lieut. R. J. Galin, Wright Field.

A third ATSC engineer, Lieut. Myron Trybus, reviewed experiments in wing deflating, by passing fuel through the leading edge, concluding that the experiments, at Minneapolis, using Boeing B-37, Consolidated B-24, and Lockheed 12-A planes showed superior protection to that provided by the inflatable rubber shoe system of deflating, but admitting that additional data were needed.

Simplification of controls on the KC-97, transport version of the Boeing B-29, have been adhered to a design point where the plane can be flown on ordinary short-range missions by pilot and co-pilot without a flight engineer, and in emergency by one man only, in the co-pilot's seat. Kenneth C. Gordon, Boeing engineer, informed the SAE group in a discussion of control cabin design.

► Pilot Needs Standard—Improvements needed in control cabins from the pilot's point of view were outlined by G. F. Beal, Northwest Aircraft's first pilot, who warned against sacrificing visibility of the pilot to gain a few miles per hour speed and improved descent and deflating of windows, called for two complete sets of flight instruments, including gyro instruments, for any plane as large or larger than the DC-3, and urged greater attention to pilot's comfort and convenience in designing seats, and placing instruments.

Use of power steering in aircraft design, to solve at least some of the problems of the tricycle landing gear, was advocated by Francis W. Davis, Waltham, Mass., consulting engineer.

A. T. Corwell, vice-president of Thompson Products, Inc., told the Truck and Bus Section that water-alcohol injection devices, currently used in aircraft, were equally applicable to engines of ground vehicles to increase power and improve performance. He recommended a 50-50 combination of water and alcohol to provide both

check control and internal cooling. Use of water injection would make possible lighter and higher-compression ground vehicle engines, as it has made possible such improvements in aircraft engines.

► Engine-Turbine Combination — Conversion of waste energy from diesel and gasoline engines, into useful work by combining the engines with turbines, as seen by C. F. Beckie, research vice-president of Continental Aviation & Engineering Corp., Detroit, as the most practical development for low-fuel consumption power plants for transport aircraft of the future. He noted the combination above either jet propulsion or present conventional engines in efficiency, for long range flights at 360 mph, although he predicted jet propulsion turbines probably would replace piston engines when higher speeds became economically desirable for transport.

A symposium on control of engine detonation concluded that some airlines and military aircraft are wasting more than 20 percent of their fuel, and discussed electronic instruments which reveal fuel wastage through detonation, and enable pilots to make compensating adjustments for maximum fuel economy.

Menasco Sales Up

Menasco Manufacturing Co., of Berkeley, Calif., doubled sales in 1944 and increased working capital from \$688,200 to \$1,081,210, according to the annual report issued by John C. Lee, president. He left uncommitted, however, the suggestion that after the war the company again will become an important engine producer—jet engines this time.

Menasco's original production of air cooled in-line reciprocating engines has been suspended and the company now makes warplane hydraulic landing gears.

► Jet Propulsion—While Menasco is not alone on the West Coast as a potential entrant into the field of jet propulsion, its facilities and experience indicate such a venture should provide a logical outlet for its post-war strategy.

Beatrice Lockheed Aircraft Corp., now makes no secret of the fact it is a believer in jet propulsion for post-war commercial airplanes, and because top Lockheed officials see Menasco's direction, the assumption is that Menasco's future will follow the curve of Lockheed's success.



Aeroprops for the Planes of Peace

Reliability and Automatic Operation of this General Motors Propeller add New Ease to Flight

Passengers in tomorrow's planes will fly with serene confidence, thanks to the brilliant engineering developments of recent years. Important among these developments is the Aeroprop, the war-proved General Motors propeller.

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These features—each contributing to the reliability of the pro-

pellor—distinguish the thousands of Aeroprops that have helped American planes dominate the skies. These same engineering achievements of General Motors research will serve the millions who will fly in the coming years of peace.



Aeroprop Advantages—Lightness for payload... Strength for safety... Simplicity for easy service... Foster Automatic Pitch Change for flight efficiency... Full Feathering for engine protection... Engineered for reliability.



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PRODUCTION

1945 Schedule Increases Easier For Industry Than Year Ago

Full operations resumed by East and West Coast AWPC's so meet new demands of armed services.

Upward revisions of aircraft schedules for 1945 will be met with greater facility than would have been possible a year ago, although industry sources disclose that they anticipate spot difficulties of considerable proportion.

The East and West Coast Aircraft War Production Councils have resumed full operations to meet the new demands of the armed services with the program stepped up from last October's projected 1945 schedule of 38,668 planes to 52,250 today. The Aircraft Division of the War Production Board is now operating and undoubtedly will have representation on the Aircraft Production Board.

The whole story is not told in the stepped up total production figures, however.

Here, in brief, is the situation confronting the aviation industry:

► The production schedule of 52,250 planes probably will be revised upward again.

► The critically needed combat and transport types must be produced in quantities proportionately far greater than demanded under any earlier overall schedule. Monthly dollar value of output must be brought from \$167,000,000 in October, 1944 to \$223,000,000 average for the second quarter of 1945—the program is being tripled in a crisis of about six months. This means that cutbacks and readjustments of production in the cutback areas to bolster the "hot plane" programs must be taken in stride.

► Most important planes are the B-26, the B-24 and the B-17, the C-54, the whole range of jet-propelled fighters, the Navy fighters, and presumably the B-32.

► The B-26 program is probably the hottest of all. Production at the Boeing plants in and near Seattle will be jumped from 35 in December to 350 a month during its summer. That program is just getting under way as the plants get out of B-17 production and are toled for the big new ship

B-26 production at Boeing-Wichita, Martin-Owaha and Bell-Merritt is also scheduled for increase, with production at Wichita now running 190 a month. No estimates are available for the Martin and Bell B-26 plants.

► The B-17 program will be a major headache for the reason that Boeing's withdrawal from the output schedule at Seattle requires both Douglas and Lockheed to step up production in their plants 25 percent, as well as meet the needs in their other vital programs.

► The B-24 will be continued in full production at Willow Run and increased output there is now being considered.

► The whole group of Navy fighters is under the intensified program, with the Corsair rated most important for increased production by WPA Chairman J. A. Krag.

► The twin fighters of materials and manpower will remain serious. One of the primary difficulties is going to be the re-manning of plants that were cut back in the fall, despite the 4-F campaign now under way. Workers laid off from

4-Engine Airliner Delivery Delayed

Airline hopeful of a start on deliveries of their order for four-engine equipment that summer will not get these until the war production outlook changes radically, and quickly.

It probably will be well into 1946 before first deliveries can be anticipated.

It has been learned authoritatively that there is no place in the production schedules for these planes, and that there will not be.

Douglas—with orders for 18 DC-4's, 78 DC-7's and 36 DC-7's—is involved in two critical aircraft programs, for the B-17 and the C-54.

Lockheed—with orders for 38 Constellation's—is also involved in the B-17 program and in other "hot" schedules.

Curtis—with orders for 26 Commanders—is tied up and will be in C-46, B-24's production and B-32 modification as well as production on some unspecified planes.

Boeing—plant involving the Stratoliner—is completely unable to divert

these plants will seek employment first in other war plants in the belief that their original plant would again be the first to be cut back when heavy war demands end. ► A serious element in the manpower situation that has been left



Production Record—Moose Cooling: Even though production records were broken by the Boeing plant at Wichita during December—with about 150 being produced, the program is being stepped up here and at Seattle, Owaha and Merritt. Some of the December planes are shown on the Wichita flight ramp undergoing final tests. Part of the plant is shown in the background.

the mentioned in the announced intention of Selective Service to draft men now deferred who are less than 30 years old. Shifting of the aircraft plants of men less than 36 years old has been worked out, although the effect was minimized somewhat by the reductions in schedule. That cushion is not indicated in the present situation.

Materials are going to be short. Efforts to maximize this include an agreement—reached in 10 days through the Aircraft War Production Council—to hold all aircraft materials orders to a minimum basis, starting off of all really critical materials from civilian production even where spot authorization for that production has been given essential aircraft, tank and rocket schedules.

The fact that emphasis is being concentrated more on certain types of ships is going to affect the aviation industry through the subsidiary problems of housing, transportation and food. As an example,

Developments

Civilian with announcement of stepped up warplane schedules over these developments:

► The National Aircraft War Production Council extended to WPA Chairman J. A. Knud its pledge of full support of warplane production and expanded program. The committee offered renewed assurance that nothing would be permitted to interfere with their determination to keep military production schedules. "We feel," said the representatives, "that interested efforts by our fighting men in both the European and Asiatic fronts will be matched in the intensity of work by our own industrial forces. We believe we speak for our employees in yielding devoted vigor in the war production program."

► Military agencies have been advised against using intricate scheduling as a club over production. Military officials have been bluntly critical of every crumb of post-war planning, and are facing schedules higher than they normally would be set in at a level. Civilian production experts are fearful that continued "production planning" campaigns will create only confusion and fear without actually stimulating production.

schedule increases in the Bell plant at Marietta will require new housing for several thousand workers who cannot readily be recalled to that immediate area—the same will be true in many other cities. Whether they can be built or provided in time is another question entirely. There are further indications of a tightened machine supply, and bus lines and bus companies are already extremely tight.

► Production of any civilian personal aircraft is "out." Requests for permission to resume production in some labor areas in plants without war contracts have been sidetracked and war contract production is being uphauled into these plants as fast as arrangements can be made.

► If the problem becomes any more serious, dispersion of small sub-assembly work to community workshops outside of effective working range of factories will be extended. The British idea of professional workers and non-war workers of various groups contributing from two to four hours a day to war production in addition to their own work is another far possibility. If all depends on how long the military schedule must be maintained.

Electric Prop Test

Glenn L. Martin Co. engineers have developed a new electrical system checker that makes it possible to test the complete circuit of an electric propeller with the engine running, locating defects in a few seconds.

The new device consists of a small fibre box mounting four lights hooked up in a multiple-purpose circuit, and can be plugged into the propeller electrical system either forward or aft of the prop relay box, or into the governor to provide three separate sets of checks. Because of a varied combination of circuits and attaching points, only four lights are needed to give a complete check of the propeller electrical system.

Plan New Products

A new products department in the aeronautical division of the B. F. Goodrich Co., Akron, O., has been established to work with aviation companies on the development of products for the industry.

The department will cooperate in development of new products of rubber, synthetic rubber and plas-

tics, the company has announced. It is staffed with engineers assigned to work with all branches of the aeronautical industry.

Scientific Painting Aids Convair Output

Color schemes at plants designed to reduce eye strain, nervous tension and mental depression; rise in production efficiency and reduction in accidents and absenteeism claimed.

A marked increase in production efficiency, with a decrease in accidents and absenteeism, followed scientific painting of the Consolidated Vultee plants in San Diego, Nashville, and New Orleans, according to J. M. Druehl, chief industrial engineer of Consolidated at San Diego.

The color system, designed to provide "eye-rest" for workers, is one of the biggest jobs of its kind in the country, and was carried out by Pittsburgh Plate Glass Co.

► **Color Research**—Studies made of manufacturing processes and worker fatigue show eye strain is reflected in lowered output and nervous tension and mental depression where colors were monotonous and where light intensities vary between machines and wall areas.

In the Consolidated Vultee plants, machines have been painted in colors that highlight important sections with different but not too widely contrasting colors while walls have been painted in "eye-rest" colors that do not force the worker to make readjustments to meet light intensities every time he looks up. The contrasting machine colors also are utilized to guide the eyes to specific points requiring attention.

'Feeder' Shop Opened

Dispersion of manufacturing operations to take advantage of manpower in concentrations within 60 to 80 miles from the Consolidated Vultee plant in Nashville, Tenn., has been started with the opening of a "feeder" shop at Decatur, Tenn. The shop will be devoted to assembly of small parts for the Lockheed P-38 Lightning, being built at the Nashville plant.

Schedules for the plant call for an immediate increase in personnel, and it has not been possible to recruit workers fast enough in Nashville.

Phillips
background of experience
and extensive
research facilities
will be
at your service
for finer
postwar flying fuels



PHILLIPS PETROLEUM COMPANY, BARTLESVILLE, OKLAHOMA
A major supplier of 100 octane gasoline to the Army, Navy, and United Nations air forces

22

COMMENTARY

U. S. Capture of Luzon to Move Bomber Line Closer to Japan

Gigantic strides made in past year give American forces virtual control of air and sea; cleanup of mighty land-sea-air base in Pacific to be beginning of end for Nippon empire.

The past year has seen gigantic strides as the road back to Tokyo, and the landings on Luzon mark the end of the beginning. The cleanup of this mighty land-sea-air base will be the beginning of the end. The loss of Luzon will mean the end of the Japanese Empire as such.

The struggle will be desperate, but with practically complete control of the air and sea, the final result is certain, and for the enemy, catastrophic. It will help the overall campaign in a variety of ways. Control of the South China Sea cuts off China west of the vital Canton-Hong Kong zone, French Indo-China, Thailand, Malay States, Sumatra, Java and Borneo.

Epitaph. In China, despite the loss of most of their big bases in South China, General Chenmou's 14th Air Force record from Nov. 15 to Jan. 15 is the best in its history from the standpoint of damage to shipping and military objectives on land, and it has demonstrated the extreme unlikelihood of the Japanese ever gaining effective use of their North China to Singapore rail line. This means a free hand for the British to clean up the Burma campaign and win back Southeast Asia. A revitalized China would then be amply supplied. All this is but the left arm of a mighty pincer movement, of which an equally spectacular advance through the Central Pacific forms the right.

Solomon to Admiralty.—With the occupation of the tiny Green Islands in early February, 1944, the air base of Buika, north of Henderson, was outfitted and strategically, the long battle of the Solomons was over. The powerful base of Rabaul, New Britain, had been badly smashed up by flyers of the 5th Air Force on New Guinea, and by units of the 13th

Air Force and Marine groups in the Solomons.

In March, Manus in the Admiralty Islands was occupied. April saw the landing operation which bypassed Wewak to capture Aitape and Hollandia in New Guinea, advancing the bomber line 1,000 miles nearer Tokyo than it had been in the spring of 1943. The 13th Air Force, now commanded by Maj. Gen. W. St. Clair Streett, took up headquarters at Manus, in June, a jump of 1,000 miles from Guadalcanal. Here it was incorporated into General Kenney's Far Eastern Air Forces.

New Gains in Philippines.—The 13th helped in the conquest of the remnants of New Guinea's northern coast, and by late summer had made another 1,000-mile move to Wake Island. From here it hammered away at the Caroline bases to Yap and Ulithi, neutralizing bases for the landing on Palau, and at the Malakal base in preparation for MacArthur's jump to Morotai, while also smashing Cebu, Zamboanga and the Cebu to the south. As Maj. Gen. Ewan Whitcomb's 8th Air Force moved up into the Philippines in October-November, the 13th hopped into Morotai. From these bases they played a vital part in the conquest of Leyte and the neutralizing of air bases on the other islands, while continuing their air blockade of all points south and west.

Central Pacific Progress.—On the right flank the program was no less impressive. A year ago the air team composed of Navy, Marines, 7th Air Force flyers was clearing the 6,000 for the brilliant campaign which sealed the strategic bases of Kwajalein and Eniwetok in the Marshalls.

June and July witnessed the occupation of Saipan, Tinian and Guam in the Marianas, a jump of

1,000 miles to the west. This group of highly strategic islands constitutes the nearest base to the Japanese Empire gained by the Nazis right flank. However, persistent air and surface attacks against the Bonins and Volcano may indicate an imminent move to shove the bomber line within striking range of Liberators and bombers. Lightning and Zero-range Thunderbolts in the meantime, while Guam was being built up, a powerful assault to the MacArthur left flank drive was rendered by the occupation of Palau, now a strong base for 7th Air Force Liberators.

Strategic Air Power Unleashed.—With the establishment of the Seventh Air Force in Saipan in July and the 21st Bomber Command's bases on Saipan, Tinian and Guam during the succeeding months the way was opened up to strike mighty blows at Japanese war-making capacity, with the aircraft and engine industry high up on the priority list. Lieut. Gen. Mildred P. Harmon, commander of Army Air Forces, Pacific Ocean Area (AAFPOA), moved his headquarters to Guam and became Commander of Strategic Air Forces in the Pacific (COMSTRAFAIR), a job an Admiral Nimitz staff similar in its military objectives to that of its fellow power arm of the World War, Lieut. Gen. Carl A. Spaatz, chief of USSTAF. Both are all-out in their conviction that heavy precision attacks by air against vital targets will be the key to "total victory" the enemy's power of resistance.

NARRATIVE

114,253 Airmen Trained in Canada

The British Commonwealth Air Training Plan in Canada trained 114,253 pilots and aircrews, an almost unbelievable record by the Canadian government's disclosure.

In all, 156,221 trainees entered the program. Of the total graduating, 5,246 were trained in Royal Air Force and Fleet Air Arm schools in Canada. The remainder trained at Royal Canadian Air Force bases under the plan, providing 62,995 pilots, 27,990 navigators, 15,600 radio operators-air gunners, 12,566 air gunners, and 947 flight engineers and other specialists. While the air training is being curtailed, some 13,000 are still in training and about 5,000 are awaiting training.

Mid-Continent's Contribution to War Born Needs-



Leader in Flight Era Ahead

Mid-Continent has been a pioneer in developing aviation oil for the U. S. Army and Navy and today, huge quantities are being supplied to the war fronts all over the globe. However, Mid-Continent's facilities are so vast that supplies of this superior lubricant are, or soon will be, available for commercial and privately owned aircraft. Your inquiry invited.

MID-CONTINENT PETROLEUM CORPORATION
TULSA, OKLAHOMA

GOODYEAR AIRCRAFT PRODUCTION REPORT



CONTRACTS: 78504, 80-402, 97126

CONSOLIDATED PB2Y3 (Coronado)

FLIGHT DECKS, ALERONS, ELEVATORS,
RUDDER STABILIZERS, FINS, FLAPS,
OVER WINGS AND FLOUTS FOR 250 PLANES

FIRST CONTRACT RECEIVED: DECEMBER 1940

FIRST PRODUCTION UNIT DELIVERED: JANUARY 1942

CONTRACTS COMPLETED: MAY 1944

Goodyear Aircraft's part in making possible the quantity production of these big four-engine Navy Patrol Bombers (115' wingspread, 73' length) included the complete re-engineering for production of all above-named assemblies except flight deck. Once re-engineered, Goodyear's ingenuity made it possible for these major components to be produced on the Record of these big flying tanks in the Pacific testifies to the success of Goodyear's share of light metal engineering in solving the complex production and engineering problems.

Goodyear is building components for 34 different Army-Navy types of aircraft, including amphibians, carrier fighters and Navy bombers.

HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE

1. By constructing major components to manufacturers' specifications.
2. By designing parts for all types of airplanes.
3. By re-engineering parts for quality production.
4. By building complete airplanes and airships.

AIRCRAFT INDUSTRY

5. By extending facilities of Goodyear Research Laboratories to aid the solution of any design or engineering problem.



GOODYEAR AIRCRAFT CORPORATION
Akron, Ohio • Lithfield Park, Arizona

PERSONNEL

Alfred H. Marshall has been elected vice president and director of United Aircraft Service Corp., a subsidiary of United Aircraft Corp., which



Alfred H. Marshall

functions in the field service and installation engineering organization for Pratt and Whitney aircraft engines, Hamilton Standard propellers and Chance Vought airplanes. In 1943 he was appointed assistant sales manager of Pratt and Whitney Aircraft, a position which he retains.

W. E. Sherland has been appointed assistant to the president of Mid-Continent Airlines and will make his headquarters in Kansas City. Mr. Sherland's recent executive returns to air transportation follow his war time service with the War Relocation Authority National Red Cross where he served in administrative and public relations work.

Forbes H. Flynn has been named service manager of Pratt and Whit-



Flynn

Loefer

ney Aircraft Division of United Aircraft Corp. **Henry N. Igo** has been appointed assistant service manager, Flynn, formerly assistant service manager, succeeds **John E. Basse**, who recently became chief engineer of Pratt and Whitney Aircraft of Muskegon.

Comdr. William C. Chombliss has assumed his duties as head of the program planning branch of the Navy's Office of Public Relations. An aviator, Commander Chombliss entered the Naval Reserve in 1938. He was on the staff of Admiral William F. Halsey, Jr., when he was Commander Aircraft Battle Force.

Paul F. Bergard has been appointed associate director of the research laboratory at the Airplane Division of Curtiss-Wright Corp. He was previously director of flight test for the division.

Capt. Harold B. Miller, now staff public relations officer, Commander in Chief, U. S. Pacific Fleet and Pacific Ocean Area, and well known aviation writer, has been awarded the Legion of Merit for his services in aid and aid services on the staff of the commander of a task force, U. S. Atlantic Fleet. He and his wife, **Joan Depent Miller**, have collaborated on three books on aviation subjects.

Dr. Ross A. McFarland, medical coordinator for Pan American Airways, was in Miami for conferences with pilots and engineers in connection with alleviating crew and passenger fatigue on long-range high-altitude flights by a cabin super-charging method of sound, vibration and instrument lighting, regulation of temperature, humidity and ventilation. Dr. McFarland also is connected with the Division of Industrial Research at Harvard University.

Air Reduction has announced the following appointments: **R. F. Bergquist**, formerly sales manager of the north central division, is appointed general sales manager; **J. J. Loefer**, formerly sales manager of the south central division, is director of sales service; **C. M. Wood**, who has been serving as sales manager of the Pacific Coast Division, is named assistant in the vice president in charge of sales. In addition, **H. F. Eiler**, headquarters manager of the Los Angeles District of Air Reduction, is appointed sales manager of the Pacific Coast Division.

Col. Franklin P. Stone, a veteran of World War I and a prominent figure in peacetime aviation, has been as-



AWARD TO BELL:

Lawrence D. Bell, president of Bell Aircraft Corp., left, is shown receiving the 1944 Daniel Guggenheim award for achievement in the design and production of military aircraft. **Mac Short**, past president of the Society of Automotive Engineers, made the presentation at the Society's annual meeting recently.

signed commander of Buckley Field, near Denver. Colonel Stone replaces **Col. E. A. Lockman**, who was assigned to command Sheppard Field, Tex.

L. H. Cooper, manager of Consolidated Vultee's Motors division, has assumed a similar post at the New Orleans division. Former director of Converter field operations, Cooper was manager of the Elizabeth City division while based in Miami.

Dr. Robert F. Yaka, manager for B. F. Goodrich Co. of a government synthetic rubber plant near Louisville, has been elected vice president of American Arconite Inc., a company affiliate.

D. A. O'Connor has been named director of passenger sales in the eastern region for Transcontinental and Western Air, Inc. O'Connor was formerly northern division travel manager for Eastern Air Lines and has been in the airline traffic business since 1931.



when he joined the Washington Air Line, and then moved to Eastern when it acquired Washington.

Comdr. William E. Kane has been appointed head of the Naval Aviation Personnel and Military Training Program, succeeding **Comdr. Frank H. Truchsess**, who has reported for duty as son. Commander Kane has been in duty in the Pacific where he headed the famous "Grin Bangers" Squadron.



Blackout For Exhaust Flames!

Burning exhaust gases no longer "spot" night-flying planes for enemy observers... thanks to the Solar flame damper which suppresses the tell-tale flames, reduces plane visibility and has greatly increased the effectiveness of night combat operations.

Solar engineers have played a major part in the development of flame dampers because the design and fabrication of products which must withstand high operating temperatures and severe vibrations, possess great structural strength, yet be light in weight, has been Solar's specialized activity for fifteen years.

As the leading manufacturer of airplane exhaust systems and other high temperature alloy products for the elimination of gases, the utilization of waste heat energy, and the control and transfer of heat, Solar has become the recognized authority. Its services are available to aircraft manufacturers with such problems.



SOLAR AIRCRAFT COMPANY—SAN DIEGO 12, CALIF.—WAS MOINES 5, IA

Col. **Stetis J. Mann** has reported for duty in the Aviation Division, Materiel Corps headquarters. Colonel Mann has been a representative in Congress for the past 16 years and was ranking Republican on the House Naval Affairs Committee. He was in a Marine aviation unit in the last war and remained in the reserves.

Brig. Gen. **Victor E. Bertinardo** has been named chief of maintenance for the Air Technical Service Command. He will be stationed at Wright Field. Before going on active duty, General Bertinardo was vice president of Douglas Aircraft Co., Inc. He has served as deputy commander in Chief, Gen. George C. Kenney in the Far East Air Service Command. In his new post he will be responsible for the worldwide maintenance and overhead operations that keep the AAF's air fleets in action.

Four important promotions in the manufacturing division have been announced by Glenn L. Martin Co., Baltimore. **Nth H. Lee**, formerly factory manager, has been advanced



Lee Young



Stewart Boudin

to assistant to the vice-president, manufacturing. He has been succeeded as factory manager by **Robert Young**, previously assistant factory manager. **Nathan Stewart**, formerly factory superintendent, Army Division, has been promoted to assistant factory manager, and **Robert Boudin** has been advanced from assistant superintendent, Army Division, to factory superintendent, Army Division.



NEW C & S OFFICER:

W. Robert Bolander, Jr., whose election to the vice-presidency of Chicago & Southern Air Lines has been announced, has been secretary and general counsel of the airline. Bolander joined C & S in 1941 as assistant general counsel and advanced to general counsel in 1942.

Wallace I. Gates, district traffic manager for PCA, is the first airline representative to head the Buffalo Passenger Association. He has been elected president of the traffic group. **Fred R. Clemens**, PCA's district traffic manager in Pittsburgh, has been named to the newly-organized Pittsburgh District Aviation Committee, a group sponsored by the Chamber of Commerce.

W. C. Burks has been named as cargo development manager in charge of all cargo operations for Chicago & Southern Air Lines, Inc. **Ernest Ostrowski** has been named assistant to the general traffic manager and will continue to handle subsidiaries and stations in addition to his new responsibilities.

Lester (Liz) Mary Ellen O'Connor (photo), a former United Air Lines' stewardess, has been designated flight nurse in charge of the Navy school for air evacuation of casualties just established at Alameda, Calif.

The school will train flying Navy nurses for the first time. After ten years with United, Lester O'Connor became a Navy nurse in 1943. Three other former United stewardesses have been selected to attend the school which will comprise 24 nurses in the first course. They are: Evelyn Erdle, Monrovia; Edna Gwendolyn Neale, and Edna Wainwright Jennings.



J. W. Thomas, revenue auditor for Northwest Airlines, has been appointed head of a new revenue division in the company's Treasury Department. He is a member of the revenue accounting committee of the Income and Accounting Conference, Air Transport Association. He formerly served as chairman of the Subcommittee which helped work out details for establishment of the Airline Clearing House.

Staff changes involving four veteran United Air Lines men have been announced. **Max C. Henge** has returned to his former position as station manager at Modesto, Cal., after serving as United's military operations for the ATC at Anchorage, Alaska. He replaces **John T. Meyer**, who has become station manager at Monterey, Calif. **Bruce W. Hall**, station manager at Monterey, has been transferred to the Piedmont, Ore., station. **Paul L. Edwards**, assistant station manager at Salt Lake City, a station manager at Long Beach, Calif.

Charles L. Morris (photo) who, as engineering test pilot with Igor I. Sikorsky since 1941



piled up more hours than any other man in helicopters 24 at flying, has joined Beech Aircraft Corp., Inc., in connection with the development of helicopters of new and radical design. He will be director of field operations for the organization. In 1933 Morris was co-chairman of aerodynamics for the design of the Sikorsky HO4S, president of the National Association of State Aviation Officials, president and a founder of the American Helicopter Society, Inc., and a member of Quest Division.

Personal announcement has been made of the appointment of **Louis H. Inwood** as special aircraft consultant to the board of directors of Reconstruction Finance Corp., in connection with its surplus aircraft disposal activities. Inwood is on leave of absence from Transcontinental and Western Air, Inc. Prior to joining the airline in an executive capacity he served with the Aircraft Division of War Production Board, Civil Aeronautics Board and Interstate Commerce Commission.

William E. Gitten has been made regional traffic manager for Chicago and Southern Air Lines at Memphis. He will handle all cases on the route between Memphis and Detroit and also St. Louis, Peoria and Chicago. **J. R. Howe**, city traffic manager at Little Rock, becomes district traffic manager for the new office to be opened shortly in Indianapolis.

Announcing Two Highly Developed Collins Autotune* Transmitters



Collins 164-B—Normal power output: 300 watts phone, 500 watts CW. Frequency range: 1 to 18 mc. Ten quick-dial frequencies.



Collins 221D-13—Normal power output: 2500 watts phone, 3000 watts CW. Frequency range: 1 to 18 mc. Ten quick-dial frequencies.

In design and construction, these transmitters reflect intense engineering endeavor and hard won experience in meeting the requirements of war. The most advanced laboratory refinements are combined with military ruggedness on a production-line basis.

The lessons learned since Pearl Harbor have increased the already high test accuracy and dependability of the Collins Autotune. Any one of ten frequencies is reliably, precisely available at the flip of a dial, from a remote point. The standard models are crystal controlled, and special models are available with variable master oscillator control.

The physical size of these transmitters has been increased, and components specially Collins designed, to increase safety factors throughout.

The renowned Collins air network matches into a wide variety of single wire or vertical antennas. The 221D-13 also matches into a 400-ohm balanced transmission line from 4 to 18 mc.

Frequency-shift keying is available, making it possible to use these transmitters in printing telegraph circuits.

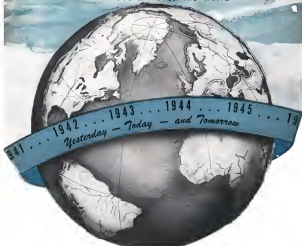
We will welcome inquiries and an opportunity to make recommendations for your particular application. Collins Radio Company, Cedar Rapids, Iowa.

*The Collins Autotune is a sophisticated mechanism which quickly shifts all tuning controls simultaneously and with extreme precision to any one of a number of pre-selected frequencies. Patents were pending as the U. S. A. and other countries.

IN RADIO COMMUNICATIONS, IT'S...



Marquette Aircraft Wipers are in Use All Over the World



DURING these years we have gained invaluable experience. We have provided hydraulic and electric windshield wipers and bomb-buster wipers for the aircraft of our Air Forces. They have proven successful at high

speeds... under severe and variable climatic conditions... on curved and flat glazings of many shapes and sizes. Marquette wipers are universally accepted as important factors in safe flying.



The **Marquette METAL PRODUCTS CO.**
CLEVELAND 10, OHIO

*Manufacturers of: windshield and fuselage windshield wipers for aircraft
hydraulic and electric wipers for ground service equipment • dies on pump
and compressor • precision parts and assemblies*

FINANCIAL

Two New Insurance Firms Enter Airline Field; Third in Offing

Continental Casualty Co., offering public liability, passenger liability and property damage and affiliated firm, Transportation Insurance Co., will write hull insurance; Liberty Mutual to offer liability coverage.

Two new insurance companies have entered the airline field, one now working both hull and liability coverage, the other at present soliciting only liability accounts. A third large company is preparing to enter the market.

The only formal announcement has been that of Continental Casualty Co., and its affiliate, the Transportation Insurance Co., both of Chicago. Continental is offering public liability, passenger liability and property damage, and Transportation will write hull insurance. The Continental participation in aviation insurance is not limited to the airlines, but will cover all planes.

Liability Coverage—Liberty Mutual Insurance Co. has laid the groundwork for writing aviation insurance and has approached airlines offering liability coverage. Hull insurance will be offered through another company, it is understood. Liberty is one of the largest companies operating in the aviation field, and its entry into the aviation field is an outgrowth of discussions held last year and the year before by an Air Transport Association committee with aviation corporations. Reports are that Liberty has completed its arrangements for re-insurance.

The third company preparing to enter the field is Lamborn's Mutual, one of the largest of the mutual fire corporations. Presumably this company will offer hull insurance, possibly writing liability through an affiliated company.

Rates Comparable—Airline carriers have disclosed that the rates being offered by the new entrants are comparable to those of the three established groups, but that broader coverage is expected to result from the additional competition. The bulk of aviation insurance in the airline category has been written in the past by two groups—Associated Aviation Un-

derwriters and United States Aviation Underwriters—with a third group, Aero Insurance Underwriters, handling in the neighborhood of 60 percent of the private flying field. This third group, however, has re-entered the airline field in the past year and is understood to have written policies for Colonial Airlines and Alaska Star Airlines. It also has been soliciting policies to other airlines.

These three groups are reported by the Civil Aeronautics Board to have written among them some 98 percent of aviation insurance reported to the New York State Insurance Department, which has been the only one requiring an aviation rating board. The three groups, with the firm of Newhouse & Byrne, compose the rating board.

Controversy—Although a controversy has been raging for several years, it is significant that reports of new companies entering the field show that rates are comparable. There has been little disposition on the part of most airline executives to believe the part played by the three groups, and rates of the group have indicated better as experience indicated reduced safety factors in airline flying. However, it has been felt that profits have remained high in relation to loss ratio. The groups, on the other hand, have answered that the profit ratio has appeared high, but the catastrophic losses occasionally could wipe out reserves.

It is felt, however, the more competition and particularly the entry of the mutuals in the picture, will stabilize the field and permit greater savings as the safety factor climbs.

Others to Follow—There are indications that the market will be thrown wide open by the fact that these new companies are entering the field. The advantages will accrue not only to the airlines, but

to fixed base operations, private flyers and passengers in both commercial and noncommercial flight.

It will be recalled that several accident companies have offered reduced rates, and that a general revulsion of life insurance policies has been made in the past months by Connecticut General Life Insurance Co., largest of the companies writing airline group insurance and insurance for commercial and private flyers and passengers.—W G K

UAL Operations Up Sharply in 1944

United Air Lines estimates its planes carried 14,711,666 ton miles of mail in 1944, a gain of 20 percent over 1943, which at the carrier's present rate of mail pay would set approximately \$11,237,900. The figure exceeds Civil Aeronautics Board's estimate of United's mail revenue for a year ending Sept. 30 1944, by \$750,246 ton miles.

United believes its 1943 revenue passenger mileage of 357,196,532 miles will be exceeded in 1944 by 20 percent to reach a new record high of nearly 456,988,600 miles. Total ton miles flown during the past year are estimated to have been 60,969,424, an increase of 35 percent over 1943.

Flare Utilities—The high mileage totals reflect plane utilization of 13 hours 20 minutes or 2000 miles per plane per day. Pre-war utilization was roughly 8 hours 10 minutes or 1200 miles per plane.

P-47 Man-hours Cut

Man-hours for construction of a Republic P-47 Thunderbolt have been cut from the 22,525 required in 1942 to 6,394, reducing cost of plane from \$60,750 to \$45,693.

The man-hour savings have been achieved by elimination of corrosion protection, less use of simplification of the work of each employee on the line, and also through elimination of unnecessary equipment and re-design of many elements.

Financial Reports

Air Association, Inc. reports for the year ended Sept. 30, last, net income of \$372,852, equal to \$2.76 a common share, compared with \$352,448 or \$4.32 a share for the previous year. Net sales were estimated to \$12,916,765 compared with \$12,564,000 the previous year.

New Air Marker System to Give More Precision in Plane Location

Method revised by CAA to show air address in degrees and minutes of latitude and longitude instead of degrees and tenths of degrees

By BLAINE STUHLMEIER

More precision in establishing plane locations from the air will result from a change in the air marking system which the Civil Aeronautics Administration is putting into effect at request of Army and Navy.

The new form gives the air address, marked on the ground and visible from planes, in degrees and minutes of latitude and longitude. It has received approval from all the nations which sent representatives to the international aviation conference at Chicago, and ultimately is expected to be used in all parts of the world.

Gives Floor Definition—As initially set up last summer, the air addresses were designated in degrees and tenths of degrees of latitude and longitude. The new system gives floor definition, locating the pilot or observer within less than a mile.

Thus an address now reading



Change Airmarker: More accuracy in air marking is expected by CAA as a result of its new system, which will give "air addresses" in degrees and minutes of latitude and longitude, instead of in degrees and tenths of degrees. A typical air marker using the former system is shown above. Changed to comply with the new system, the name of address would read: 30° 24' 24" (36 degrees 24 minutes latitude and 97 degrees 54 minutes longitude.)

41° 06' 04.5" (41 degrees, 6 minutes latitude and 94 degrees 06 minutes longitude) previously would have read 41.8 94.9 (41.8 degrees latitude and 94.9 degrees longitude.)

One change that has been made by CAA, addresses actually on or bordering airports are lettered within circles; others are not circled.

Marker Progress—Most of the states now have marker programs. Funds are provided entirely by State and local governments. CAA furnishes only advice, technical data, and standards of measurements and methods for construction. Blaine May is in charge of the marker program. A booklet giving all information is available at Civil Aeronautics Administration, Washington, D. C.

Advertisers and advertising agencies are increasingly taking part in air marking. Standard Oil of New Jersey, Standard Oil of New York, Texas Oil, Gulf Oil, Goodrich, and others are already marking out plans and some have set up markers. It is expected advertiser marking will boom when materials are available. If advertisers deposit items recommended standards in such a way as to confuse pilots, a federal control statute may be enacted.

At least four steel and porcelain manufacturers are planning to produce ready-made lettering to be installed on suited structures. These will be especially useful on swamps and desert land, and in regions where lettering on the ground and on roofs would be covered by snow.

Sectional Charts Proposed—A further modification of air markings, to reduce air addresses to minutes, eliminating degrees, has been recommended by Coast Air Search Co., and has received some support from officials of various aviation associations. Under this system sectional charts would be

marked off in numbered grid patterns, with lines drawn every ten minutes of latitude and longitude, so that intersections of the grids would indicate true North-South-East and West. The numerical system under the Coast plan would use abbreviation. For example: 36 degrees north latitude would equal 3,600 minutes. The first digit, representing thousands of minutes, is dropped. It is explained that the average airplane has considerably less flying range than 1,000 miles, so that there would be no change in the first digit within the plane's range. The final zero is dropped, and the reading becomes 36 N.

It appears, however, that since the CAA system has met with wide international approval, it will be adopted for the sake of uniformity and ease.

VE Delay Sets Back Private Plane Plans

Program for production of postwar personal airplane types held up by indications of longer war in Europe

Pushing back the expected V-day in Europe, as a result of the too successful German counterattacks, is having a far-reaching effect in the personal aircraft branch of the industry including manufacturers, fixed base operators, and potential customers. The effect is naturally a postponement of any expectations of producing postwar types, marketing them or buying them until the delayed VE-day arrives.

There is more than a little concern, among many of the fixed base operators particularly, about how they are going to keep their operations going over the extra period which has upset many of their best-laid plans. As a result the more enterprising are looking around for stop-gap money making plans which can carry their overhead until the eventual relaxation.

Contracts Caseload—Fact that only a very small number of the fixed base schools are being continued as Army and Navy training operations, is of course no help in the problem. Some operators have turned to used and surplus plane markets in an effort to make some money. There is strong demand for civilian planes of any kind. Some operators are buying and selling them at big sharp in their shops and realizing a neat profit. But opportunities are limited in this field by the small num-



Greater Pay-Loads with Fill-in Freight Greater still with Cyclones

Fixed rooms vacant overnight, empty seats in the orchestra, or a plane in flight with unfilled passenger or cargo space, all these represent revenue lost forever. The same holds true of any space left by the house or seller, signaling loss of that capacity is a sales opportunity permanently lost.

In the air transport field, fill-in freight to build up full payloads is one way of getting capacity use on every flight. A constant schedule of such freight, working at preferential rates, fills the balance

of weight and space capacity after loading passengers, mail and air express. Such rates gradually attract mass and more commodities to air travel. The net results: full payloads and increased revenue on every flight.

To such flight operators, Wright Cyclones contribute an extra bonus in payload, due to their lower weight ratio and low fuel consumption. In addition, their ease of maintenance adds to the reasons why these dependable sources of power pay their way.



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Every McQuay-Norris part in modern airplane motors is backed by 34 years of experience and progress in precision manufacture. Today the world's largest makers of aircraft motors are availing themselves of our broad background of metallurgical development, heat treating, clinical research and engineering design. Your inquiries are invited.

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Mechanical Advantage Pistons
Piston Pins

Counterweight Clutch Pins
Mechanical Magnesium Pins
Cylinder Head Cover Pins
Hardenad and Ground Pins

PARTS FOR PROPULSION ASSEMBLY

Mechanical Magnesium Pins
Piston Rings

EQUIPMENT FOR MAINTENANCE OF AIRCRAFT

Pinion for Oxygen Compressor
Pinion for Air Oxygen Compressor
Pinion for Air Compressor
Pinion for Air Compressor
Pinion for Air Compressor

LANDING GEAR PARTS

Mechanical Aluminum Pins
Piston Rings
Hardenad and Ground Pins

ber of used planes available. Surplus planes in the extensive inventory to civilian buyers are rather well combed over already except for an occasional larger type which might be useful as an executive or company plane, or perhaps for some business like crop-dusting. There will probably be more of the small biplane, personal transport and small cargo planes released but just now pickings aren't too good.

The personal plane manufacturers, likewise, are stymied on post-war work. A number of them have completed and flown prototypes of their first post-war planes. But most of them are up to their ears still in war contracts, and those who aren't are losing labor to other war plants, as WPB puts on the pressure for badly-needed war material.

The big need for horsepower in war production at present is a relief, to some extent for over-extended suppliers of fixed buses and schools, since it shifts to employers whom they cannot afford to curtail in the present lean period, but whom they will need again as soon as restrictions are relaxed.

Merchandising

A midwest airport operator, embracing several miles of his fellows in the same field, currently is merchandising flight training to employees of industrial plants in his area, on a group basis. While the idea is not yet far enough along for a full report on its success, he says the plan is.

The operator approaches the management of a large plant, usually a plant connected with the aviation industry, with a program of aviation training for its employees at a low group rate. In order to obtain that rate, the management agrees to underwrite part of the flight training cost as an investment in better employee relations, thereby enabling the workers to get flying time at a cost well below that of prevailing rates charged in the area, as well as supplying them with aviation knowledge which will make them more valuable employees. The rate applies only to employees who fly at least an hour a week, and only if a certain minimum group from a plant sign for the training program, which could include ground school classes as well as flight instruction.

War Comes First — Of course there is no argument about the necessity for war production first. Day-dreaming about post-war civil aviation and neglecting the present war emergency is obviously a stupid, short-sighted policy which the aviation industry, above all others, must guard against, since aviation has earned and will continue to earn a major portion of the total war load until victory.

Typical of the personal aircraft builders whose post-war thinking is shelved because of their more immediate war jobs, are Waco, Beech, and Cessna, who turned out some of the best personal planes available pre-war, albeit at a price higher than most could afford. Waco's experience during the war has been on gliders, while Beech has been turning out small transports, photographic planes and advanced trainers, with Cessna concentrating mostly on twin-engine trainers. With gliders proving more and more useful in combat, certainly Waco can't expect to make any personal planes for quite a while. And Beech and Cessna's hands are full with war sub-contracts.

Wiggins Takes Over Westfield, Mass., Port

W W Wiggins Airways has taken over Barnes Municipal Airport at Westfield, Mass., for flight training, charter flights, aircraft and engine overhaul and repairs. George Van Epps, commercial pilot, flight instructor and CAA flight examiner, will be the company's supervising manager there. Joseph Gaudin, president of the

Boston and Harvard, Mass., company, predicted that the airport at Westfield, which he described as one of the best in New England, would be important as a junction point at CAA grants the firm's application for a feeder line system in that area.

The company's fleet at Westfield is to be increased, with four- and five-place cabin planes available for charter flying.

CAA Booklet Gives Airharbor Plans

Small-scale seaplane base is easily constructed and inexpensive landing area for small communities.

Except for a wide open space, where no land-leveling is required, probably the most inexpensive landing area is a small seaplane base. Almost any community which has a body of water as much as a mile long in the prevailing wind direction and with moderate depth, say two feet or more, can provide itself with an airharbor for very small cost.

And while the base would be limited to serving float planes and seaplanes, there is indication that the amphibian may be one of the most popular forms of personal plane, judging from dealer acceptance and public interest in the Republic four-place \$3599 amphibian.

Drawings Available — All of which leads up to the fact that CAA has available a booklet of drawings on seaplane facilities, which any community with an adequate adjacent body of water might study with profit. Drawings



Minimum of Expense for Seaplane Base: Minimum facilities for a seaplane base, as depicted above by CAA Airports Section, offer a solution to the expert problem of the small community which wishes to begin its landing facility program modestly. All that is required is the body of water, an extensive float, gangway, boom, wind cone, and mooring buoy. More facilities can be added later.

illustrate in detail how the base can be built first as a rocket affair, with a single float, paraplane, launch, wind cone, and incense burner, all of inexpensive construction. These can be supplemented with a ramp leading into the water, for launching the plane.

In the first stage of construction, the float is a wooden platform, 22 by 10 feet, surrounded by bumpers. The float is supported by empty gasoline drums, and is attached to shore by a gangplank on one end and a long boom on the other end. Such a setup would be only for the smaller float-planes.

Details of Construction—Other detailed drawings in the book show fabrication of a two-wheel dolly for launching light floatplanes, details of construction of various ramps, and floats, including finally a concrete ramp which will carry loading up to 2400 pounds.

While some of the drawings are sufficiently detailed to use as working drawings, they show clearly the design contemplated, and offer a good basis from which any competent engineer can work. Copies of the book in illustrated manner are available at the CAA.

Port Accounting

The comparatively small group of private airport operators who have some good accounting systems and other business-like procedures, and have been able to show a profit or at least break even in their operations over the last several years, are in a position to cash in on their experience with other communities which need their know-how in setting up new airports. Several veteran airport managers and operators are already acting as consultants, part or full-time, although the field will not really open up until considerable is taken on the proposed partial federal financing of local airport projects.

A realization of the same general idea is the establishment of organizations which will provide "take-over" airports to fit a community's need. One such group is considering banding together to provide the various facilities needed by an airport through a central marketing organization, which will also provide the engineering and advisory services necessary to establish the airport and train the personnel to operate it.

Briefing For Private Flyers and Non-Scheduled Aviation

Boadix Helicopter, Inc., says its projected four-passenger dual-rotation helicopter will sell for the price of "a good automobile" if produced in sufficient numbers, that it requires only two controls and that it will be easier to master to operate in its operation than a person who has had pilot's experience in a conventional plane.

Auto Breakfast Flight—Oakland, Calif., AOPA members recently held their first breakfast "flight" from Fort Harker, but with planes still proscribed by national defense restriction, they made it in automobiles and went out to Sherman field where they looked at their planes in the hangars.

Over the Ramp—Two 14th Air Force Flyers recently took a pair of Stinson 185 hp liaison planes from a base in Amoy to an advanced base in China, flying over the Himalayas. Although the planes carried auxiliary fuel tanks, they attained a necessary 10,000 foot altitude on the flight.

Flying Priests—Arrangements for 36 Catholic missionary priests to take an intensive flight training and engineering course at Parks Air College, East St. Louis, have been completed. The priests will use their planes in the remote areas of Canada around Hudson Bay, and have been ordered by their Bishop, Most Rev. Marc Lacroix, to learn details of engine maintenance, meteorology, radio, and instrument repair, since they will be without skilled assistance. The Hudson Bay diocese included 1,432,000 square miles, and extending to the north pole, is now covered by missionaries trying to get there. Completion of the course will give the priests commercial pilot's licenses, as well as maintenance and repair training.

Aid for Private Airports—The last newsletter of United Pilots & Mechanics Association suggests possibility of federal aid for private airports as well as for public ones if the private airports make their facilities available to the government and to the public on the same basis as public airports. Such an extension of the national airport program would create a complex problem in determining what revenues the private owner was entitled to take from his airport, after it was partly financed by public funds. Perhaps a federal loan to private airports would be a better solution.

Education Needed—Apparently more aviation education is needed among residents of Adams County, Ind., where an airport development project calling for \$25,000 in contributions for financing was dropped when only \$16,000 was subscribed, although the county had been offering a 100-acre airport site free if it raised the development funds. Perhaps the project was too large and the committee erred in attempting it all at one time. At any rate, the Adams county case is a sample of what other airport enthusiasts may expect unless they lay their ground work carefully, making residents of a community fully conscious of the future economic benefits to be derived from an adequate landing facility before they solicit contributions or ask for allocations from tax money or bond issues.

New Airports—At Seattle, Wash., the King County Aviation advisory board advocates plans for five additional fields for private use, one including one combination landing and seaplane base. These would be in addition to seven airports now in the Seattle-Puget Sound area.

New Classification—Classifying airports by hundreds of yards of length has been proposed by Arnold Knauth, aviation law specialist. Knauth contends American airport measurement should be in yards rather than in feet, because the yard is similar to the meter, and would be almost interchangeable for practical purposes, that existing an international standard. Under the Knauth system a No. 4 airport would be one with 600 yards or 1,200 feet of landing area available. No. 5 would be one with 7,700 feet of landing area available, going into the Class III airports, and No. 10 would indicate 1,990 yards or 3,700 feet. Under his plan the pilot would know immediately the length of the runway by the airport number.

A. McEl



With His Aeronca Program For A Small Airport!

"Anyone can build an airport," Joe told the City Fathers, "but here in Centerville we want our airport to be a *paying proposition*! I've given a lot of thought and study to this problem, and I've convinced this town council the answer. The Aeronca program is based on 16 years of leadership in the personal plane business, and includes lessons learned by scores of successful Aeronca airplane dealers operating from small airports."

No wonder the Council unanimously agreed when Joe concluded, "I think we ought to get all the facts from Aeronca right now!"

Plan—today—to make the small airport in your community a *profitable proposition*. Find out about Aeronca's complete program. Fill out and mail the coupon without delay, and by the foundation for your success in post-war aviation!

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Please send me the following books checked below. I enclose 10c for each book:
[] "HOW TO MAKE SMALL AIRPORTS PAY WITH AERONCA"
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Radios, Ground Controls Expected To Spur Private Flying Expansion

Director of federal airways, CAA, sees personal plane operator as biggest post-war customer for radio aids to navigation.

The post-war personal plane pilot will be the biggest customer for radio aids to navigation and will demand equipment on the ground which will permit him to fly with reasonable dependability merely through use of a low-cost, lightweight radio receiver and transmitter, in the opinion of Thomas B. Bourne, director of federal airways, CAA.

Speaking before the Dayton (Ohio) Engineers' Club, Bourne expressed his hopes of at least four new "all-inclusive" systems of air navigation and air traffic control which are the answer to the pilot's prayer. "It is asking that radio development researchers consider the private pilot and economy in dollars and weight of equipment needed by the pilot in the plane. The CAA is sure many private pilots will want to fly safely."

Radio for Christ

Michigan CAA members report they have been experimenting with an interesting two-way radio communication arrangement for portable jumpers who by its use can maintain communication with instructors on their way from one plane down to the ground. Five units were built and delivered before the present outfit, contained in a metal cabinet 4 by 4 by 5 inches, was developed.

The microphone is adapted from a crystal lapel mike, now used as a throat mike. A laugh at the head, running from the jumper's foot up to the set, provides the antenna. Jumper jumps on the set in "receive" position before leaving the plane and can throw the set to "transmit" position by a convenient lever which returns to receive position when released.

CAP Lieut. Arthur E. Copeland and Radio Technician Ed Potrusnik are credited with perfecting the set. First "chat-to-ground" conversation was carried on between Lieut. Ralph Benkenman, jumper, and Lieut. James Allen on the ground.

nationally with no more equipment in their planes than would be required to fly within the United States.

► **SHR to VHF**—With concerns of the larger nations that the very high frequency, non-directional, variable-range radio range is the ideal short-distance navigational system, steps are being taken to convert present low frequency ranges to VHF, and it is estimated that over half the present 37,000 mile airway system in this country will be served by VHF ranges by July, 1946. Initial installations are of the two-course, variable, two-course radio type, but are planned to convert these to non-directional ranges as rapidly as possible.

Post-war CAA plans also call for a system of low-frequency, high-powered, non-directional ranges to permit long distance flight by distance-finding, on completion of the VHF range program. The long-distance facilities are to be designed to permit directional guidance in an aircraft even if it is not equipped with direction-finding receiver.

He reported VHF instrument landing system developed by CAA in 1939 has been adopted by Army, and is planned to be standard by the end of the fiscal year 1946. CAA will have 50 of these systems in operation, in addition to 50 which are being installed in the next 18 months. It already have been completed. Of the civilian 58, 10 now are installed or in process of installation and the remainder will be completed in the next 18 months.

► **Glide Path Receiver**—For the private pilot to take full benefit of the instrument landing system, he would require a glide path receiver. However, Bourne believes more pilots will be satisfied with the guidance of the runway lead-in only, due to maneuverability and slower speed of the average private plane. When the pilot has completed his approach and is underneath the screen he will shift his receiver to the local control frequency for final landing instructions. Thus the plan contemplates that most CAA navigation, communications and traffic control

Gas Prices Cut

New lower ceiling prices in cents per gallon for three low-octane grades of aviation gasoline: 62-65 octane, 73 octane and 84 octane, effective Jan. 23, have been established by OPA for sales by refiners in Arkansas, Louisiana, and Texas, exclaves of El Paso. The grades are largely used by small planes and for flying aircraft engines of the Hercules.

Ceilings are lower than many of the Oct. 1941 "freeze" high-octane gasoline price ceilings are in line with ceilings approved over the last year for individual refiners. Prices under the October, 1941, freeze were higher than is now justified with increased production, OPA said.

The new ceiling prices: For 62-65 octane, 7 cents, 74 cents and 74 cents to Class II, III and IIIA; for 73 octane, 7 1/2, 7 1/2 and 7 1/2 cents and for 84 octane, 7 1/2, 8 and 8 1/2 cents. All prices are per gallon for bulk lots, full references or smaller lots. Class I purchasers are refiners, the U. S. government and buyers purchasing for ultimate use, consent to the Petroleum Administration for War District I (Atlantic Coast and District of Columbia). Class II purchasers are refiners not included in Class I, while Class III purchasers are consumers not included in Class I.

The announcement made no indication that any reduction in retail aviation gasoline prices would be made available to the individual buyer as a result of this lowering of bulk lot prices.

radio aids will be available to the pilot by use of but one receiver, which must be capable of covering the frequency band of 100 to 132 megacycles, without interruption, equipped with push-button or tunable controls or a combination of both.

CAA hopes soon to put under service test an automatic communications system for traffic control, along the New York-Washington airway, and other ground equipment for the plane which will automatically report aircraft position as it flies along the airway, and which will automatically display traffic control instructions, perhaps visibility, in the plane's cockpit. Bourne believes this plane equipment will be more economically practicable for larger com-

mercial transports than for small private aircraft.

► **Other Developments**—Other scheduled instrument developments in CAA's future program include a "scanning screen" for control towers, operated on electronic principles, which will show the traffic controller the actual position of all aircraft at all times within a radius of 25 miles of the airport, a collision-warning device for use in division of all planes operating in instrument flight weather, and a distance indicator, which will enable the pilot to measure his distance from a range station, the end of a runway at an airport, or perhaps another aircraft. Such a distance indicator has already been developed for wartime use and is expected to be adaptable for the peacetime application.

The collision warning device may be either a development of wartime electronic devices, or a refinement of 1943 CAA development known as a vertical separation indicator. This was a low-powered transmitter powered by a sealed airtight capsule, so that changes in altitude would vary the frequency of the transmitter. The varying frequency would be reflected on an indicator showing the vertical separation between the plane and other aircraft in all directions within fixed limits. Bourne believes that partly developed device may be the answer to the collision-avoiding requirement, but has asked for research by other radio technicians on other solutions to the problem.

With the aid described, Bourne believes the aid could be handled in all weather in the same volume as it is handled today in most favorable weather conditions. An efficiently designed airport with dual runways can handle planes at 30 second intervals on the landing runway while planes are taking off on the other runway at the same interval, making possible 140 movements of planes per hour under any weather conditions.

CAP to End Target Operations Mar. 1

Civil Air Patrol will conclude its low-target operations Mar. 1, Col. Earle L. Johnson, national commander announces. Operations at their height employed about 380 CAP members, most of whom were over age or otherwise disqualified for military service. Over 13,000 man-hours, totaling more than 44,

688 airplane hours, have been flown with seven members killed, five seriously injured and 19 CAP planes lost.

Special reels were installed by the Army in CAP planes used to tow the dummy targets. After successful tests in the fire of 36 caliber machine guns and 48 mm anti-aircraft guns, the CAP pilots also towed targets for 90 and 128 mm guns.

► **Flew at Low Altitude**—The CAP planes were held effective because of their small size and slow speed, which when dived in low altitude, caused the target to follow the same course in the gun sights as that of a big plane flying high and fast. First CAP low-target missions were flown by members of the Illinois Wing, at their own expense, early in 1942, at Ft. Sheridan, Ill., and later regular CAP low target and tracking teams were set up in both the Eastern and Western Defense Commands for anti-aircraft artillery training.



JET-PROPELLED GAZDA HELICOPTER:

Antoine Gazda, of New York, shows previous developments have been principally in connection with anti-submarine aid, a developer of the jet-propelled Helicopter speeder above shows. The new craft uses jet-propulsion for the main rotor, and also uses a jet at the tail for steering and to counteract torque, instead of another smaller rotor. Below, Gazda shows the jet propellers and the jet at the tail for steering and to counteract torque, instead of another smaller rotor. Below, Gazda shows the jet propellers and the jet at the tail for steering and to counteract torque, instead of another smaller rotor. Below, Gazda shows the jet propellers and the jet at the tail for steering and to counteract torque, instead of another smaller rotor.



north-south runway of 5,000-foot length, an 8,000-foot east-west landing runway, and a 10,000-foot east-west takeoff runway.

Blue Seaplane Harbor—The present airport, representing an investment of more than \$19,000,000, carries 4,500-foot, 5,300-foot and 6,300-foot runways. It also has seaplane harbor now used by the Navy. A terminal for all airlines, it also is a maintenance and operations base for United Air Lines and Pan American.

Doolin told the supervisors the expanded airport will produce an annual gross revenue of \$1,097,332 against total operating costs of \$616,890. Breakdown of the revenue forecasts follows: food and restaurant facilities, \$101,150; public convenience services and retail stores, \$96,150; utility services, \$57,500; foreign and domestic scheduled air carriers, \$202,240; personal services, \$118,400; ground area and structural rentals, \$162,000; other income, \$55,900.

NEA Reopens Montreal-Beacon—Northeast Airlines recently resumed twice daily flights between Montreal and Boston. These flights, canceled early in the war due to lack of aircraft, are now being operated out of Dorval airport, Montreal.

Budget Asks Raise

In CAA, CAB Funds

\$6,905,358 increase requested, of which all but \$199,777 would go to CAA.

An appropriation increase of \$8,860,260 for the Civil Aeronautics Administration and Civil Aeronautics Board, of which all but \$199,777 would go to the former agency, has been recommended by President Roosevelt in the budget for fiscal 1946, starting next July 1.

Proposed amounts are \$42,467,993 for CAA and \$1,725,300 for CAB, compared with \$35,562,635 and \$1,525,523, respectively, for fiscal 1945. Mr. Roosevelt mentioned the office of the administrator of civil aeronautics in his budget message as one of those for which increases were recommended "to prepare for the expected increase in workload."

\$196,990 for 12 Planes—CAA's expected expenditures include \$91,000 for purchase of 12 planes, to be used by its safety team in investigating aircraft accidents, that was not part of the 1945 budget estimate. Six new automobiles also are to be purchased for nearby in-

vestigations, at \$6,000, but the exchange of that number of older cars is expected to cut the figure to \$4,500. Since increase in personnel also is contemplated, including 18 analysts in various grades, and additional trial examiners.

In CAA, a new amount of \$625,898 is requested for an estimate for an airport advisory service to state and other public and private agencies. Another new item of \$464,000 is estimated for maintenance and operation of aircraft under the administrator's office, with authorization to the Secretary of War and Secretary of Navy to transfer to CAA, without payment, not more than 15 surplus aircraft.

Administrative—For general administration, \$2,728,900 is budgeted, compared with \$2,666,718 appropriated for 1945. The budget lists \$9,657,300 for establishment of air-traffic facilities, against \$4,607,500 appropriated for the current fiscal year. For maintenance of air navigation facilities, the estimated amount is \$24,368,832, against \$24,675,143 for fiscal 1945, and for technical development, \$613,000 estimated against \$600,000 in current appropriations. Another drop is noted in the amount budgeted for enforcement of safety regulations, which has an appropriation for \$3,303,737 for 1945 and is budgeted for 1946 at \$3,112,000.

Expenditures for maintenance and operation of Washington National Airport is \$532,300, against \$529,000 in 1945 appropriation.

N. F. Action Allays Bottleneck Fears

Newfoundland's withdrawal last week of the reservation attached to the two freedoms agreement by the United Kingdom puts at rest fears expressed in some U. S. quarters that Britain was trying to establish a bottleneck in Atlantic air traffic, but has not been unexpected in official circles. Inasmuch as the U. S. delegation at Chicago outlined British administration of Newfoundland is probably only temporary, it was not disturbed to find the United Kingdom unwilling to commit the convention government the former decision.

Also Applies to Labrador—Generally overlooked in the reporting of the Newfoundland action, however, is the fact that it applies also to Labrador, the administration of which rests with Newfoundland. While the statement noted that,

under the two freedoms agreement, Newfoundland was entitled to designate airports to be used by foreign airlines, and declared such designation will be made in due course, it also the question of use of certain airports is in abeyance. This is interpreted as being a tacit admission that clobbering for Goose, the great military airport in Labrador, is not yet in order. Although Canada has a 60-year lease on Goose for military purposes, the matter of civilian use has been put off until the end of the war.

Douglas Completes DC-3 Reconversions

Company announces it is unable to take any more jobs after finishing work on 17 aircraft.

Douglas Aircraft Co., having completed recently the reconversion to passenger use of 17 DC-3's formerly in military service, has served notice that it will be unable to take any more such jobs. In the meantime, it is investigating other places where further work along the same line may be done, and will continue to offer cooperation in engineering and supervisory work.

Suggestion was made last year that some reconversion difficulties could be avoided by diversion of new planes to airline use directly from Douglas C-47 assembly lines. This plan is still in the talking stage, however. It would have to have approval by the Army, if desired by the airline. Latest reports that the question of cost, whether lease or purchase, and other factors were considerations were so involved that the airlines have shown little if any interest.

The situation as to parts and equipment has lightened, but Douglas has built up a reserve and has a distribution base at Dallas, with others in prospect at Chicago and New York.

Alone Conversions—Feeling at Douglas is that the domestic line, particularly the big operators, can handle their own reconversion, pretty well. Concern is expressed, however, over the foreign lines that have been allocated C-57's. To these, Douglas is offering standard DC-3 conversions kits within 75 to 100 days after receipt of orders.

Such kits include cabin flooring, ventilating system, interior lights and lining, lavatory and baggage

GRINNELL "AN" FITTINGS

Link the Life "Lines" of the CURTISS SB2C HELLDIVER



"Sunday punch" of the U. S. Navy task forces is this powerful Curtiss dive bomber. Designed for the toughest job—smashing jobs, in component equipment must take the limit in plane-killing assault.

The hydraulic system operates the bomb bay door, wing flaps and landing gear at 1,500 pounds pressure. This internal pressure, together with violent external stresses caused by dive bombing, places terrific demands on tubing and fittings.

The ability of Grinnell "AN" Tube Fittings to meet every requirement to date is evidenced by their use on the HELLDIVER and on planes whose hydraulic systems are designed for 3,000 pounds pressure.

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UAL's 24-Hour Maintenance. Upward Air Lines' mechanics at the company's San Francisco maintenance base have a day and night job of inspecting and overhauling the C-54 transports used by the line in air transport operations for Air Transport Command.

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Approximate value of the art is \$6,000 per plane, delivered at the factory. It includes, however, no parts required for reconditioning. Estimate is that these average about \$2,800.

Blame Ice in Crash

Icing conditions were the probable cause of an accident in which an American Airlines' DC-3 crashed near Centerville, Tenn., Oct. 15, 1942, according to an accident report issued by Civil Aeronautics Board last week. The plane was not equipped with wing or propeller de-icing equipment.



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information circulars, with maintenance hints and sketches, but mainly designed to stimulate conversation and interest.

Equipment—First step in maintenance plans, according to F. A. Page, maintenance superintendent, is determining what will be needed in support service station equipment—loading devices, trucks, work stands, etc. Much of United's present equipment will be suitable because it was planned ahead.

Sixty or more supervising mechanics from various United stations will be sent to Douglas plant for 30-day familiarization course.

1,500 Miles Non-Stop—DC-4's carrying payloads of six tons will have a range of over 1,500 miles non-stop compared with 165 miles for the single-engined Boeing 40's in 1937. Increasingly expensive stations will be fewer, be easier to supervise, and do a better job.

Emphasis is being put on design of the planes for easier maintenance, and for easier service and less ground time to point up the airplane's chief asset—speed. Plans call for many access doors to fuel valves, lines, pumps and most working parts in place and accessible. Parts at leading edges, for instance, will be removable.

PAA Presents Case For Azores-Africa

Pan American Airways' case for a South African route via the Azores rather than the Caribbean-Brazil-South Atlantic route it presently flies was the chief feature of Civil Aeronautics Board's South Atlantic case, which has closed after four days of testimony. The company attempted to show that the route it now operates under temporary certificates would be far less profitable than the Azores-Africa line it has applied for.

Company witnesses said Pan American would abandon the present route if certificated via Azores.

Other Cases Pressed—American Export Airlines and Pennsylvania-Central Airlines were the only other operating applicants who presented cases. Several steamship companies and U. S. Airships, an applicant for helicopter-air routes, also were heard.

CAB Examiners William J. Madden and James S. Keith conducted the hearing. Mar. 7 has been set as the date for final preliminary briefs.

Extension of MCA to New Orleans OK'd

CAB authorization line to operate on AM 26 from Tulsa via Muskogee, Fort Smith, Texarkana and Shreveport.

An important extension of Mid-Continent Airlines' north-south system was granted by Civil Aeronautics Board last week in an authorization to operate on AM 26 from Tulsa to New Orleans via Muskogee, Okla., Fort Smith, Ark., Texarkana, Tex.-Ark., and Shreveport, La.

The line is certified as far north as Miami, N. D., although because of the war it actually has Minneapolis-St. Paul as its northern terminus. Tulsa has been the southern terminus.

EC-Tulsa via Joplin—The line also covered permission to serve Joplin, Mo., between Kansas City and Tulsa, and authority to bypass Tulsa and Muskogee on non-stop flights between Joplin and Fort Smith. Service to New Orleans is restricted to flights originating or terminating at Kansas City or points north, and at New Orleans.

The Board's decision in the Kansas City-Tulsa-New Orleans case also authorized Continental Air Lines to serve Bartlesville, Okla., between Wichita and Tulsa on AM 43. Applications of Delta Air Corp. and National Airlines for the New Orleans-Kansas City link were denied.

Avoids Duplication—The majority decision by Chairman L. Welch Page and Members Gerald Ryan and Josh Lee, found that extension of the route by Mid-Continent would avoid harmful duplication, permit the line to spread its operating costs, and provide more efficient operation. Extension Mid-Continent, they state, will be able to offer single company through service between New Orleans and Minneapolis-St. Paul.

Members Warner and Brandt filed concurring and dissenting opinions, disagreeing with the majority in several important respects. Dr. Warner held that the new route grant to Mid-Continent should extend only to Shreveport.

Brandt Favors Delta—Brandt maintained that Delta should have been certificated from Shreveport, its present terminus, to Kansas City via Texarkana, Fort Smith, and Joplin. The route granted, he points out, parallels Delta for 261 miles between New Orleans and

Log of C-97

Boeing's C-97, the four-engine Army cargo version of the B-24, flew from Chicago to Washington in 10 hours under an hour and a half on its recent record-breaking trip from Seattle to the Capital.

An hour after taking off the ship was over Lake Center d'Alene, Idaho. Two hours later it was south of Great Falls, Mont. The Missouri was crossed at Moberly, S. D., three hours from Seattle. Lights of Chicago were visible at 4 hrs 24 min and five hours out of Seattle the ship was south of Toledo. Last-down was started just east of Pittsburgh. Six hours after the flight began the plane was 31 miles out of Washington and 80 miles. Elliott Merrill, was talking landing with the Washington control tower.

Shreveport and Brantley for 97 miles between Tulsa, Muskogee and Fort Smith.

Brandt criticized the financial ability of Mid-Continent, which is now receiving the second highest mail rates of any domestic carrier. "If Mid-Continent cannot break

even without subsidy on route 68 which includes such cities as St. Louis, Kansas City, Des Moines and the Twin Cities, it will not be able to break even on the proposed route which offers much less in the way of potential traffic," he said. In the first eight months of 1944, Mid-Continent experienced a deficit of about \$84,000 on AM 48.

Ban Burbank Field In Bad Weather

Locked Air Terminal, Burbank, Calif., has been placed under emergency bar against bad weather use by Civil Aeronautics Administration's sixth region head-quarters since American Airlines' fatal accident there Jan 16 TWA, United, American, Western, and Pan American use the terminal. The order closes the door if flights are under 3,000 ft and visibility less than 2 miles by day and 3 by night.

After Jan 18, A. N. Kemp, American's president, and high officials of other airlines met with Los Angeles Mayor Fletcher Bowron to demand immediate action on the long-delayed development of a new Los Angeles Airport as an alternate terminal.

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Creating Demand for Airports

THE GREAT necessity for presenting to the public a realistic attitude in justifying and supporting any national airport program was made evident by the National Aeronautic Association's Joint Airport Users Conference in Washington last week.

Although marred by the usual quibbling over the relative spending powers of state, municipal and federal governments, the conference, meeting so quickly after introduction of new aviation bills in Congress, contributed to a general clarification of the issues. One thing being cut of a chaotic jumble of unsorted information as the result of a careful analysis of national legislation and proposed uniform state legislation.

Several Western states will need constitutional amendments to obtain the kind of legislation necessary to conform to uniform state acts, but Minnesota's amendment which is already passed is indication that it can be done. The National Association of State Aviation Officials reports not only that bills essentially similar to the uniform act are being presented in every one of the 44 state legislatures which will soon be in session, but also that it believes chances for passage in all states are good.

NEVERTHELESS, the first plank in NAA's national landing facility program remains legislation. Because without it we shall find some states entering the post-war public works programs without authority to spend federal money on airfields in their jurisdiction, and we may see a recurrence of stone fences, rustic bridges and artificial lakes.

But education is necessary, and the reasons were never better explained than by NAA's manager, Lowell Swenson, in a direct and forceful warning that once the war is over aviation may cease to hold its lure, and the public may decide that it would rather have bridle paths and rustic bridges after all.

"There is still need to educate the public to the necessity of and the reason for increased and improved landing facilities," Swenson told the conference. "Will airport legislation be as easily passed? or will you hear the cry that roads are more necessary, that before the war there were 33 million automobiles in the country and only 55,000 airplanes? How much recognition is there of the fact that automobile registrations increased geometrically with the increase of road mileage? How

much argument is there with the philosophy that aviation can develop only through a basic network of landing facilities?"

SWENSON EMPHASIZED that City Fathers and taxpayers' groups already are asking down-to-earth questions about the cost of landing facilities—both the original outlay and the upkeep. Some cities have passed bond issues. More have been defeated. Newspapers are beginning to interpret proposed public improvements in terms of as much additional tax burden on the individual.

"We can't afford to take for granted the public's attitude toward aviation. Everybody loves airplanes now. They are winning the war. But what is going to be the carry-over in affection? Is everybody going to love airplanes when the goal of war is removed, when dollars spent on aviation are not an easily identifiable life-saving expenditure? Let's recognize that it is going to be tougher, much tougher, to sell aviation in peace than aviation in war."

"The public must be sold on the long-term social and economic benefits of a national airport program. The public must be shown—not just told in glowing words and promises—that those benefits of landing facilities for personal aircraft are benefits for all, not just a minority, of the people."

"It must be disbursed of the idea that 99 and 99/100s of the population is being asked to finance something for a few daredevils and wealthy sportsmen. That's a job for those concerned with aviation's development. . . you cannot leave that to Uncle Sam. He may provide the money but he can not, and will not provide the demand for that money."

"People must be made to see in landing facilities an end to isolation, a place on the air map, a door to the outside through which will flow the most easily understandable thing in economic life—business. We've got to treat the taxpayer like a full-grown adult, who knows the facts of life. After the war, when the flush of victory has receded, and paying off the debts and survival is the issue, try talking to people in beautiful, glowing optimistic word pictures about a sky filled with airplanes, and see how far you get. They may be your dreams, but it's the public's money."

Some missionaries of aviation's future are living in a world of fancy, but NAA is not one of them.

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